RIT

Title: SVG 2 Track

Semiconductor & Microsystems
Fabrication Laboratory **Revision**: **A** **Rev Date: 10/24/2018**

Approved by:

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Process Engineer Equipment Engineer

1 SCOPE

The purpose of this document is to detail the use of the Silicon Valley Group (SVG) 88 Series Track. All users are expected to have read and understood this document. It is not a substitute for in-person training on the system and is not sufficient to qualify a user on the system. Failure to follow guidelines in this document may result in loss of privileges.

2 REFERENCE DOCUMENTS

- SDS for AZ MiR 701 Photoresist
- SDS for Hexamethyldisilazane (HMDS)
- SDS for Edge Bead Remover
- SDS MF-CD-26 Developer
- SVG Operation System Overview Manual
- SVG Programming Manual
- SVG Coater Manual
- SVG Preventative Maintenance Manual
- SVG Training Manual

3 DEFINITIONS

n/a

4 TOOLS AND MATERIALS

4.1 **General Description -** The SVG Track is a 150mm coat and develop wafer track. The coat line is on the back of the tool and runs right to left. The develop line is on the front and runs left to right. The coat line contains 5 modules (HMDS prime, cool plate, spinner, soft bake, cool plate) controlled by the two controllers on the right. The develop line contains 5 modules (PEB, cool plate, spinner, hard bake, cool plate), controlled by the two controllers on the left. See Fig 1.

Fig. 1 SVG Track

5 SAFETY PRECAUTIONS

5.1 Hazards to the Operator

5.1.1 **Chemical hazards** - The SVG track uses various organic solvents in the coat process and basic solutions in the develop process. Operators should read the SDS for these materials and be familiar with hazards and safety controls to prevent contact before using the system.

5.1.2 **Electrical hazards** – Electrical hazards exist inside the tool. Do not operate without all covers in place. In the event of an emergency push an **EMO** button on either end of the machine.

5.1.3 **Spin hazards** - During spinning operations, wafers rotate at high speeds and can shatter. Always wear safety glasses.

5.1.4 **Pinch hazards** – Pinch hazards may occur during operation. Keep clear of moving parts.

5.1.5 **Burn hazards** – Avoid contacting the hotplates.

5.2 Hazards to the Tool

5.2.1 **Waste bottle overflow** – Make sure that the waste bottle is not full before use.

5.2.2 **Arm damage** - The robotic arms on the SVG Track may be damaged if they are re-positioned manually. If the tool hangs up, do not attempt to re-position the arms. Contact a staff member in case of an arm error.

5.2.3 **Hot plate contamination** – Avoid back side coating of wafers. If wafers are run through the track with resist on the backs, the hotplates will become contaminated.

5.2.4 **Wrong chemistry - AZ MiR 701 Photoresist** and **CD-26 Developer** are the standard chemicals on this tool. Other resists could lead to clogs and need SMFL approval before use.

5.2.5 **Wrong cassettes** – Only use the labeled black polypropylene cassettes. Other cassettes may cause wafers to crash and damage the arms.

5.2.6 **Recipe change** – Please do not change established recipes. Established recipes will be posted on the tool.

6 INSTRUCTIONS

6.1 Swipe in on the card swipe system.

6.2 Verify that the waste bottle is not full.

6.3 Verify that all of the controllers are in Auto mode.

6.4 Make sure the backs of the wafers are clean. Avoid warped or damaged wafers.

6.5 Clean the photoresist dispense nozzle.

6.5.1 Obtain an acetone squirt bottle from the solvent cabinet.
6.5.2 Rinse the end of the photoresist dispense nozzle with acetone. Make sure all of the dried resist has been removed.
6.5.3 Return the acetone to the cabinet.

6.6 Load programs on each module

6.6.1 Verify that each module has the correct program loaded.

6.6.2 If the desired program is not currently loaded, press the **PROGRAM SELECT** button to cycle through the programs until the desired program is displayed.

6.6.3 To switch between the active modules on a controller, press the **STATION SELECT** button. A cursor is displayed on the far left-hand side indicating the active module. Pressing the **STATION SELECT** button will cause the cursor to jump to the other module.

6.6.4 Make sure temperature settings are correct on temperature controllers.

6.7 Remove cassettes

6.7.1 If cassettes are present and the elevators are not indexed to the top, *single click* **INDEX RESET** to bring up the send cassette, or *double click* **INDEX RESET** to bring up the receive cassette. After the elevator indexes to the top, the cassettes may be removed.

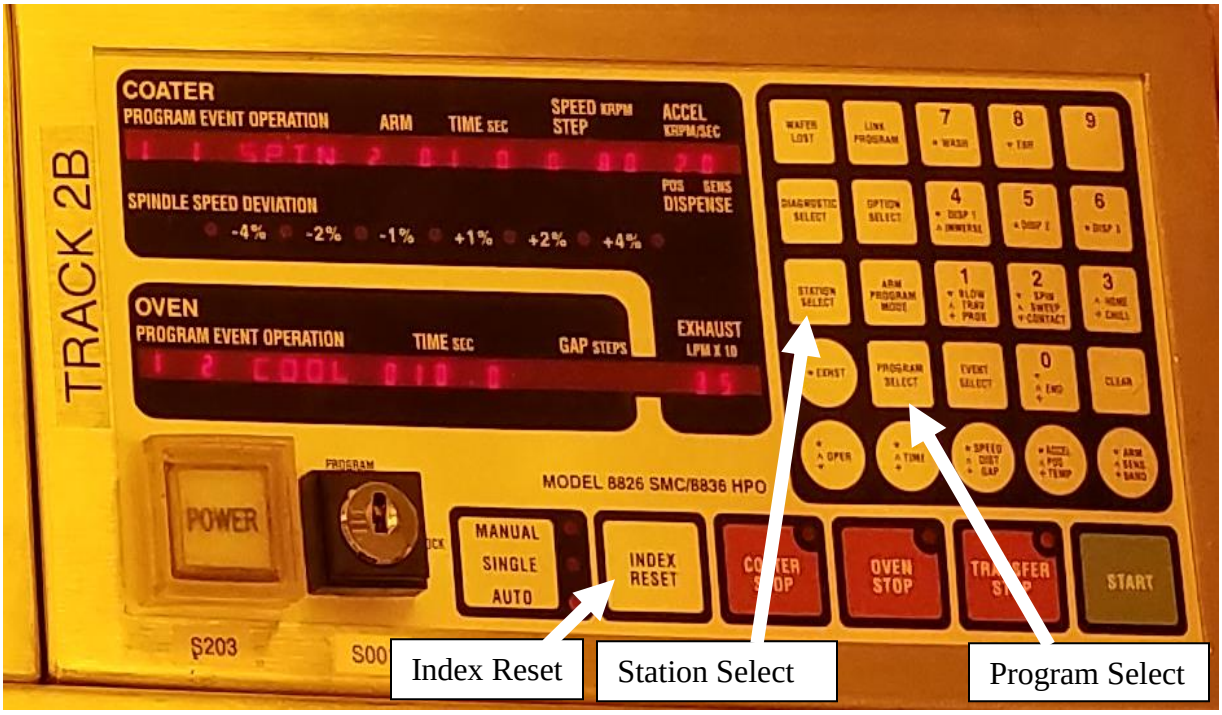

Fig 2 SVG Controller Buttons

6.7.2 If there are cassettes present and the elevators are indexed all the way to the top, the cassettes may be removed.

6.8 Set the cassettes

6.8.1 Set the receive cassette on the elevator. Ensure the cassette is properly seated.
6.8.2 Set the send cassette on the elevator. Ensure the cassette is properly seated.

6.9 Start the run

6.9.1 On the coat track it is recommended that a couple of blank wafers run through the track before any device wafers. This will ensure that any bad resist is purged from the nozzle and that the bowl is seasoned.
6.9.2 To start a track, press **START** on the appropriate module. The track will begin to run wafers. Either of the **START** buttons for the coat track or either of the **START** buttons for the develop track may be pressed since they are linked.
6.9.3 The controllers will display the current process step for a given module and other process information as the recipe runs.
6.9.4 **Hand dispense is not allowed on this track.**

6.10 Unload wafers

6.10.1 When the line has finished processing all wafers, the receive elevator may not index to the top. Do not remove the cassette without the elevator at the top.

6.10.2 *Single click* the **INDEX RESET** button on the appropriate controller to move the **load** elevator to the top. *Double click* the **INDEX RESET** button on the appropriate controller to move the **receive** elevator to the top. After the elevator indexes to the top, the cassettes may be removed.

6.11 Shut down

6.11.1 Swipe out on the card swipe system.

6.12 Errors during Run

6.12.1 Avoid removing wafers that are wet with developer. Contact a staff member.
6.12.2 Occasionally the SVG Track will hang up during operation. Typically, this is caused by a warped or dirty wafer creating a vacuum error or by a bad cassette. You may fix the problem and then press the **START** button to continue processing. If you remove a bad wafer, press the **WAFER LOST** button and then press **START** to continue processing the remaining wafers. If the track will not restart, the system will need to be reset. See Sec. 6.11
6.12.3 A continuous alarm may indicate a low level or a full waste bottle. Contact an SMFL staff member for assistance.

6.13 Resetting the System

6.13.1 Remove any wafers that are still present in the line.
6.13.2 Turn the power off by pressing the **POWER** button on all controllers for the line to be used.
6.13.3 Wait 60 seconds and turn the power on from right to left by pressing the **POWER** buttons.
6.13.4 One or more alarms may sound. To silence an alarm press **CLEAR** on the controller which is alarming.
6.13.5 The system will go through a brief start up sequence.
6.13.6 If you get a **System Error**, contact a staff member.

7 APPROPRIATE USES OF THE TOOL

7.1 AZ MiR 701 Photoresist and CD-26 Developer are the standard chemicals on this tool. Other resists could clog the track and will need SMFL approval before use.

7.2 No back side coating of wafers. If wafers are run through the track with resist on the backs, the hotplates will become contaminated.

7.3 No hand dispense of resist.

8 ATTACHMENTS

8.1 Coater Track Programs

8.2 Develop Track Programs

8.3 SVG2 Option Settings

REVISION RECORD

Summary of Changes	Originator	Rev/Date
Original Issue	O'Brien	A - 10/24/2018